

ABSTRACT OF THE INVENTION

A combination isomerization and liquid phase adsorptive separation process has been developed. In this arrangement, a C₅+ naphtha stream is split into a heavy hydrocarbon stream comprising normal heptane and higher boiling hydrocarbons, an isomerization and adsorption zone feed stream comprising pentanes and lower boiling hydrocarbons, and a desorbent stream containing hexanes. The isomerization and adsorption zone feed stream is combined with an isomerization section effluent to form a combined feed to an adsorptive separation section. In the adsorption separation section, normal pentanes are selectively adsorbed on an adsorbent material, and a raffinate stream comprising hexanes and isoparaffins is recovered and passed to a deisohexanizer column. A desorbent stream containing normal hexane is recovered as a sidecut from the deisohexanizer column and is combined with the desorbent stream containing the hexanes from the naphtha splitter to supply the desorbent for the adsorptive separation section. The extract stream that is recovered from the adsorptive separation section is passed to the isomerization section. A bottoms stream comprising C₇ and higher boiling hydrocarbons is withdrawn from the bottom of the deisohexanizer column. A high-octane isomerate is taken overhead from the deisohexanizer column as a product stream.